bly **3***b*. The braking force between brake pad **30** and auxiliary wheel assembly **3***b* is proportional to the manual force applied to brake pedal **4***b*, and self-balancing board **100** can be brought to a more rapid stop than if only relying on the motor brake provided by motor **25**.

[0056] As will be appreciated, motor **24** of self-balancing board **100** can operate both clockwise or counterclockwise, so that self-balancing board **100** can travel in the direction opposite of T. In this reverse direction, the same principles are applied by self-balancing board **100**. Tilting of the leading end of platform **1** towards the surface being traveled over causes the controller to direct motor **24** to accelerate in that direction. Similarly, tilting of the trailing end of platform **1** towards the surface being traveled over causes the controller to direct motor to decelerate. The rider **7** can further increase deceleration of self-balancing board **100** in the direction opposite of T by manually urging brake pedal **4***a* and brake pad **30** connected thereto to engage auxiliary wheel assembly **3***a*, thereby applying a mechanical braking force to auxiliary wheel assembly **3***a*.

[0057] FIG. **8** shows an alternative configuration for self-balancing board **100'**. Self-balancing board **100'** is similar to self-balancing board **100**, except that brake pedal **4***a* has been removed and replaced with a handlebar bracket **35** to which a handlebar **34** is secured. Brake pedal **4***b* is left in place and can be operated by the rider to brake self-balancing board **100'**. In this alternative configuration, first auxiliary wheel assembly **3***a* may also be removed.

[0058] While, in the above described embodiment, movable brake pedals that are coupled to the platform via mechanical hinges are used to engage auxiliary wheel assemblies to provide resistance to rotation of the auxiliary wheel assemblies, other types of brake elements can be employed to engages the auxiliary wheel assemblies. For example, a brake pedal can be provided via a living hinged portion of the platform, where the respective portion of the platform is suitably flexible to enable manual biasing of the brake pedal between a disengaged position and an engaged position.

[0059] In another alternative embodiment shown in FIG. **9**, the brake element is a brake actuator **200** traveling generally linearly through a bore of a platform **204** and being secured to a brake pad **208**. Brake actuator **200** is biased to a disengaged position via a biasing mechanism such as spring **212** or the like in which brake pad **208** is not in contact with an auxiliary wheel assembly **216**. Brake actuator **200** may be manually biased through the bore to cause brake pad **208** to engage auxiliary wheel assembly **216**. Other types of brake elements that are manually movable to engage the auxiliary wheel assemblies will occur to those skilled in the art.

[0060] An auxiliary wheel assembly can be movable towards the platform to which a brake pad may be fixed. For example, FIG. **10** shows a further alternative embodiment in which an auxiliary wheel assembly **300** is mounted on a cylinder **304** that slidably receives a post **308** secured to a platform **312**. Cylinder **304** is biased away from platform **312** via a spring **316** or the like. A brake pad **320** is secured to platform **312**. By manually shifting weight when auxiliary wheel assembly **300** is in contact with a surface, spring **316** can be compressed so that auxiliary wheel assembly **300** engages brake pad **320**. Thus, in this case, platform **312** adjacent auxiliary wheel assembly **300** serves as the brake element.

[0061] FIG. **11** shows yet another embodiment in which an auxiliary wheel assembly **400** is connected to an auxiliary wheel support **404** which is pivotally coupled to a platform **408** so that auxiliary wheel assembly **400** can pivot about an axis **412**. The orientation of auxiliary wheel support **404** is biased to urge auxiliary wheel assembly **400** away from a brake pad **416** secured to platform **408**. By manually shifting weight when auxiliary wheel assembly **400** is in contact with a surface, the biasing force urging auxiliary wheel assembly **400** and brake pad **416** away from one another can be overcome so that auxiliary wheel assembly **400** engages brake pad **416**. Thus, in this case, platform **408** adjacent auxiliary wheel assembly **400** serves as the brake element.

[0062] While the primary wheel assembly is shown having a single primary wheel, it will be appreciated that the primary wheel assembly can alternatively have two or more primary wheels that rotate on a common axis. The two or more primary wheels could be driven by a single motor or by individual motors.

[0063] While the auxiliary wheel assemblies are illustrated as having a single elongated wheel in the above embodiment, it will appreciated that the auxiliary wheel assembly can include two or more auxiliary wheels that are spaced laterally from one another. Further, the auxiliary wheel assemblies can include one or more cylindrical braking drums of a smaller diameter than the auxiliary wheels and against which the brake pads may be urged to provide resistance to rotation of auxiliary wheel assembly.

[0064] The above-described embodiments are intended to be examples of the present invention and alterations and modifications may be effected thereto, by those of skill in the art, without departing from the scope of the invention that is defined solely by the claims appended hereto.

What is claimed is:

1. A self-balancing board, comprising:

a primary wheel assembly, comprising:

a primary wheel; and

a motor driving the primary wheel;

a frame secured to the primary wheel assembly and having a rider support member;

at least one sensor sensing the orientation of the platform;

a controller receiving data from the at least one sensor and controlling the motor in response to the received data; and

a first auxiliary wheel assembly coupled to the platform distal the primary wheel assembly, the first auxiliary wheel assembly including a first auxiliary wheel that is elevated from contacting a flat surface upon which the primary wheel rests when the foot deck is parallel to the flat surface, and being engaged with the flat surface upon which the primary wheel rests when the foot deck is tilted by a selected angle, so as to cooperate with the primary wheel to support the self-balancing board on the flat surface without triggering braking by the controller on the primary wheel,

wherein the first auxiliary wheel overlaps at least a portion of the primary wheel in a lateral direction and extends laterally across a longitudinal centerline of the primary wheel.

2. The self-balancing board of claim **1**, further comprising: